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REMARKS

Claims 1-16 are pending in the present application. Claim 12 has been canceled, Claims 6, 8, 9-11, and 13-15 have been amended, and Claims 39-41 have been added, leaving Claims 1-11, 13-16, and 39-41 for consideration upon entry of the present Amendment.

Claims 6, 8, 9-11, and 13-15 have been amended to better define Applicants' invention.

Antecedent basis for the amendment to Claim 8 can at least be found at page 8, line 18 to page 9, line 12 of the specification and in originally filed Claim 15.

Antecedent basis for new Claims 39-40 can be found at least in originally filed Claim 1 and on page 4, lines 9-16.

Antecedent basis for new Claim 41 can at least be found at originally filed Claim 6.

The Specification has been amended to correct typographical errors contained therein, as explained in detail below. No new matter has been introduced by these amendments.

Reconsideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks.

Specification

Applicants have amended the "Abstract of the Disclosure" to comply with MPEP 608.01 (b). Antecedent basis for this amendment can at least be found at Claim 1.

Additionally, in reviewing the application, Applicants have observed a few minor typographical errors in the specification. The following amendments are the relating corrections to those typographical errors.

On page 7 of the specification, the article "a" in line 24 was misplaced in the sentence. Applicants have moved the article "a" to after the preposition "of" to correct the grammar of the sentence.

On page 9, line 11-12 of the specification, the article "a" used before "alkali" has been amended to the article "an" to make the sentence grammatically correct.

IDS Not Considered

U.S. Patent No. 5,939,037 to Hepburn, et al, which had been submitted in an IDS (Paper No. 4) was not initialed by the Examiner. The Examiner considered this IDS on July 29, 2003, and initialed each reference with the exception of the above mentioned patent. A copy of the

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form 1449 is attached hereto for the Examiner's convenience. Applicants respectfully request acknowledgement of this piece of art.

Claim Objection

Claim 6 has been amended to correct the dependency of the claim. Claim 6 now depends from independent Claim 1. Accordingly, Applicants request withdrawal of the claim objection.

Claim 8 has been amended to better define an embodiment of Applicants' invention. Support for this amendment can at least be found at page 8, line 18 to page 9, line 12 of the specification. More particularly, Applicants call the Examiners attention to page 9, lines 11-12, which states "it should be noted that a combination of an alkali metal barrier layer and alkali metal barrier in the washcoat can be employed." Accordingly, Applicants request withdrawal of the claim objection for Claims 8-11.

The objection to Claim 12 is moot, as that claim has been canceled.

Claim Rejections Under 35 U.S.C. § 102(e) and 35 U.S.C. §102(b)

Claims 1-12, and 15 stand rejected under 35 U.S.C. §102(e), as allegedly anticipated by U.S. Patent No. 6,497,848 to Deeba et al. Claims 1-4, 7, and 12 stand rejected under 35 U.S.C. §102(b), as allegedly anticipated by JP 09-0570099 (hereinafter "JP '099"). Applicants respectfully traverse these rejections.

Applicants' independent Claim 1 is directed to an exhaust gas catalyst system, comprising: a substrate, a nitrogen oxide adsorber disposed on said substrate, and an alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber. The nitrogen oxide adsorber comprises a porous support and a material loaded on the porous support. The porous support comprises a NO_x oxidation catalyst and an alkali material.

Deeba et al. teach "a catalytic trap member having coated thereon a catalytic trap material comprising a catalytic component effective for the reduction of NO_x and NO_x sorbent essentially comprising a basic oxygenated compound of an alkali metal." (Col. 3, lines 48-51). Additionally, in example 1, Deeba et al. teach "a bottom coat material comprising platinum-, lanthanum-, barium-, and zirconium-impregnated alumina." (Col. 17, lines 44-45). The top material comprised "a mixture of platinum-bearing alumina, rhodium-bearing alumina, and co-formed ceria-zirconia." (Col. 18, lines 7-9). The bottom coat material is coated onto a cordierite

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ceramic substrate and a stainless steel substrate. (Col. 18, lines 18-20). Further, in Example 1, a cordierite substrate was dipped into a potassium acetate solution. (Col. 18, lines 28-30). Additionally, for the cordierite substrate, they teach that the cesium and potassium migrated during the aging of the ceramic substrate. (Col. 19, lines 23-26).

JP '099 teaches a catalyst carrying layer carrying a catalytic noble metal and an alkali metal, an alkali metal is also carried in a lower layer under the layer and the concentration of the alkali metal is made equal to or a higher than that of the alkali metal carried in the catalyst carrying layer. (Abstract). Additionally, the diffusion of the alkali metal in the layer into the lower layer due to concentration difference is prevented and the reduction of the concentration of the alkali metal in the layer after a durability test is prevented. (Abstract). Moreover, JP '099 teaches the suppression of increased amounts of sulfites and sulfates produced after a durability test. (Abstract).

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

Deeba et al. fail to teach, *inter alia*, "alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber." Rather, Deeba et al. teach that the cesium and potassium in the catalyst members disposed on the cordierite substrate migrated during the aging of the ceramic substrate. As such, the bottom coat, which had been relied upon by the Examiner to be the alkali metal barrier (Paper 14, page 4) element, does not act as such. Moreover, Deeba et al. address the migration of cesium and potassium not by using "an alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber", but rather by using a potassium-inert carrier made of alpha alumina and titania. (Col. 19, lines 40-44). In other words, Deeba et al. do not teach or suggest an alkali metal barrier, they use a different substrate to avoid the issue. As such, Deeba et al. do not teach or suggest an "alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber".

Since Deeba et al. at least fail to teach, "an alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber," Deeba et al. fail to teach each and every element of Applicants Claim 1. As such, independent Claim 1 is not anticipated. Moreover, as a dependent claim from an allowable independent claim, Claims 2-11 and 15 are, by definition, also allowable.

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With regard to JP '099, this reference fails to teach, *inter alia*, "a NO_x oxidation catalyst". Applicants submit "[t]he identical invention must be shown in as complete detail as is contained in...the claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP 2131. JP '099 does not teach "a NO_x oxidation catalyst." Rather, JP '099 only teaches a catalyst carrying layer carrying a catalytic noble metal. As such, JP '099 does not teach the identical invention in as complete detail as is contained in Applicants' claims, i.e., JP '099 does not teach "a NO_x oxidation catalyst." Additionally, JP '099 teaches the suppression of increased amounts of sulfites and sulfates produced after a durability test. As is known in the art, sulfur compounds poison a NO_x oxidation catalyst. As such, JP '099 does not teach or suggest "a NO_x oxidation catalyst." Since JP '099 at least fails to teach "a NO_x oxidation catalyst," JP '099 fails to teach each and every element of Applicants' independent Claim 1. As such, Applicants' independent Claim 1 is not anticipated. Moreover, as a dependent claim from an allowable independent claim, Claims 2-4, and 7, are, by definition, also allowable.

Accordingly, Applicants respectfully request withdrawal of these rejections and allowance of the claims.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-4, 7, and 12 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over JP 11-156209 (hereinafter "JP '209"). Applicants respectfully traverse this rejection.

JP '209 is directed to providing a waste gas purifying device simplified in a process for forming a catalyst-carrying layer. (Abstract).

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

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In making the rejection, the Examiner alleged that the coat layer of JP '209 of aluminum hydroxide, magnesium hydroxide, or sodium hydroxide acts as an alkali metal barrier. (Paper 14, page 6) Further, the Examiner stated, "it appears [the coat layer] would also prevent alkali metals from penetrating into the substrate by its adhesive effect." Applicants respectfully disagree.

Applicants submit that one must consider both the invention and the prior art "as a whole", not from improper hindsight gained from consideration of the claimed invention. See, *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985) and cases cited therein. According to the *Interconnect* court

[n]ot only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time - a technician without our knowledge of the solution.

JP '209 taken as a whole, as is required, teaches a process for forming a catalyst carrying layer. (Abstract). As part of that process, JP '209 teaches that the addition of a hydroxide (e.g., aluminum hydroxide or magnesium hydroxide) to a slurry that is coated onto a substrate is related to a change in pH of the coating material, i.e., the slurry. Further, JP '209 teaches that the pH affects the viscosity of the slurry. (See paragraph [0012] to paragraph [0032]). In other words, JP '209 teaches the use of hydroxide as a viscosity regulating agent. As such, absent in JP '209 is any suggestion or motivation that the hydroxide is "an alkali metal barrier". There is further no teaching, or suggestion that these hydroxides are or may be alkali metal barriers. Since JP '209 at least fails to teach or suggest, "an alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber", Applicants independent Claim 1 is not obvious.

Furthermore, if the Examiner is relying on inherency that the coated layer acts as an alkali metal barrier, which it appears to be the case, Applicants submit that the rejection is improper. In order to support an anticipation rejection based on inherency, an Examiner must provide factual and technical grounds establishing that the inherent feature necessarily flows from the teachings of the prior art. *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Int. 1990); *In re Oelrich*, 666 F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981) (holding that inherency must flow as a necessary conclusion from the prior art, not simply a possible one). JP '209 only teaches that the hydroxide may be used to change the viscosity of a slurry. As such, JP '209 does not provide the necessary factual and technical grounds that would lead one skilled

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in the art to conclude that the hydroxide (e.g., aluminum hydroxide) acts as an alkali metal barrier. Reconsideration and withdrawal of this rejection is respectfully requested. For at least the reason that JP '209 fails to teach or suggest "alkali metal barrier," JP '209 fails to teach or suggest each and every element of Applicants' independent Claim 1. Moreover, as a dependent claim from an allowable independent claim, Claims 2-4 and 7, are, by definition also allowable.

Claims 1-4, and 7-12 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over JP 05-305242 (hereinafter "JP '242") in view of U.S. Patent No. 6,497,848 to Deeba et al. Applicants respectfully traverse this rejection.

JP '242 is directed to preventing "the lowering of catalytic capacity caused by the release of the coating layer on metal foil by a method wherein the first coating layer provided only to the part exposed to high temp. of a metal honeycomb carrier is constituted of a specific alumina layer." (Abstract). Additionally, JP '242 teaches a three-way component catalyst, which can purify simultaneously a hydrocarbon, a carbon monoxide, and a nitrogen oxide (Paragraph [0006]).

In making the rejection, the Examiner correctly noted that JP '242 does not "teach that the second layer has alkali metals supported thereon". (Paper 14, page 6). Rather, the Examiner relies upon the teaching of Deeba et al., alleging "that in a multi-layered catalyst for automobile exhaust gas, a top layer comprises a NO_x adsorbent (alkali metal) and a catalytic component." (Paper 14, pages 6-7). Further, the Examiner stated, "it would have been obvious to one of ordinary skill in the art to include the NO_x adsorbent in the same layer as the catalytic metal in JP '242." (Paper 14, page 7). Applicants respectfully disagree.

JP '242 fails to teach or suggest, *inter alia*, "a nitrogen oxide adsorber." Rather JP '242 is directed to a three-way conversion catalyst. As is known by those skilled in the art, "a nitrogen oxide adsorber" is different from a three-way conversion catalyst. Since JP '242 teaches a three-way conversion catalyst, one skilled in the art would not be motivated to combine the teachings of Deeba et al. to include a NO_x adsorbent material in three way conversion catalyst. It is noted that the machine translation of JP '242 is very poor and difficult to understand. In paragraph [0008], however, JP '242 states that "an alkali metal [is] in contact with the support base material..." In other words, JP '242 doesn't teach an alkali metal barrier. To the contrary, they teach using an alkali metal. Therefore they teach away from the present

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claims. Furthermore, considering that they teach away, there is no motivation to modify JP '242 to obtain the present claims. Furthermore, there is no motivation in JP '242 and/or Deeba et al. to combine these references as suggested by the Examiner. For at least these reasons, JP '242, alone or in combination with Deeba et al., fails to teach or suggest a "nitrogen oxide-adsorber", and therefore fails to render Claim 1 obvious. Moreover, as a dependent claim from an allowable independent claim, Claims 2-4 and 7-11, are, by definition also allowable.

Claims 1-4 and 7-14 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 5,112,706 to Pinsky et al. in view of U.S. Patent No. 6,497,848 to Deeba et al. Applicants respectfully traverse this rejection.

Pinsky et al. is directed to a "composition comprising an acid resistant substrate coated with electrically conductive, fluoride ion doped tin oxide." (Abstract). They teach a precoat to prevent ions from migrating from the substrate to the tin-oxide containing coating. (Col.3, lines 15-20) Additionally, they teach the substrate may be used for the chemical reduction of nitrogen oxides, to minimize air pollution. (Col. 6. lines 58-62).

Pinsky et al., like JP '242, fail to teach or suggest "a nitrogen oxide adsorber." Pinsky et al. only teach the chemical reduction of nitrogen oxides, to minimize air pollution. Absent in Pinsky et al. is any suggestion that nitrogen oxides are being adsorbed, or that the catalyst is capable of adsorbing nitrogen oxides. Rather, the Examiner attempts to overcome these deficiencies by combining Pinsky et al. with Deeba et al. More particularly, the Examiner states that "it would have been obvious to one of ordinary skill in the art to use an alkali metal and a Group VIII metal as the catalytic components...because the NO_x adsorbent would absorb the NO_x compound during lean operation and then be reduced by the Group VIII component during rich operation." (Paper 14, page 8). Applicants respectfully disagree.

Pinsky et al. do not teach or suggest NO_x adsorption they teach catalytic NO_x reduction. There is no teaching or motivation to change the mechanism of Pinsky et al. Further, there is no teaching or explanation of how the Examiner's suggested modification will effect the catalyst of Pinsky et al. There is no reason to believe the materials will perform as suggested by the Examiner. Furthermore, Pinsky et al. are not concerned with alkali metal migration into the substrate, they are concerned about ion migration to the coating and the deleterious effects thereon. There is no teaching or suggestion that the pre-coating is an alkali metal barrier.

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Additionally, Applicants direct the Examiner's attention to the teachings of Deeba et al. as discussed above. For example, Deeba et al. teach that the cesium and potassium in the catalyst members disposed in the cordierite substrate migrated during the aging of the ceramic substrate. As such, the bottom coat, which had been relied upon by the Examiner to be the alkali metal barrier (Paper 14, page 4) element, does not act as an alkali metal barrier. Moreover, Deeba et al. address the migration of cesium and potassium not by using "an alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber", but rather by using a potassium-inert carrier made of alpha alumina and titania. (Col. 19, lines 40-44). In other words, Deeba et al. fail to teach an alkali metal barrier and teach the use of a potassium-inert carrier instead of cordierite.

In contrast, Pinsky et al. teach that "a particularly useful catalyst support is a multi channel monolith made from cordierite which has been coated with alumina." (Col. 8, lines 22-24). Since Pinsky et al. teach the use of cordierite, and since Pinsky et al. teach NO_x reduction and fail to teach or suggest the combination suggested by the Examiner, one skilled in the art would not be motivated to combine Pinsky et al. with Deeba et al. Moreover, Deeba et al. teach that cesium and potassium in the catalyst members disposed in the cordierite substrate migrated during the aging of the ceramic substrate. As such, absent is the necessary motivation to combine Pinsky et al. with Deeba et al. Since Pinsky et al., either alone or in combination with Deeba et al., at least fail to teach or suggest, "an alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber," Pinsky et al. do not teach or suggest each and every element of Applicants' independent Claim 1. Accordingly, the obviousness rejection is improper. Moreover, as a dependent claim from an allowable independent claim, Claims 2-4 and 7-11 13-14, are, by definition also allowable.

Claims 8-11 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over JP 09-057099 (hereinafter "JP '099"). Applicants respectfully traverse this rejection.

Applicants direct the Examiners attention to the above discussion of JP '099. Applicants submit that Claims 8-11, as a dependent claim from an allowable independent claim, are, by definition, also allowable. Accordingly, Applicants request withdrawal of the rejection and allowance of the claims.

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Claim 16 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 6,497,848 to Deeba et al., and further in view of EP 778072 A2. Claim 16 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over JP 09-057099, and further in view of EP 778072 A2 (hereinafter "EP '072"). Claim 16 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over JP 11-156209, and further in view of EP 778072 A2. Claim 16 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over JP 05-305242 in view of U.S. Patent No. 6,497,848 to Deeba et al., and further in view of EP 778072 A2. Claim 16 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 5,112,705 to Pinsky et al. in view of U.S. Patent No. 6,497,848 to Deeba et al., and further in view of EP 778072 A2. Applicants respectfully traverse these rejections.

EP '072 is directed to "a catalyst system for purifying exhaust gases generated by a lean-burn internal combustion engine, particularly automotive engines." (Abstract). EP '072 teaches that a three-way catalyst may be located after the NO_x trap material. (Abstract).

With regard to Claim 16, the Examiner relies on the teaching of EP '072 in making the rejection. However, EP '072 fails to cure the deficiencies of the above-cited references. More particularly, as discussed above, the above cited references either alone or in combination fail to teach all the elements of Applicants claimed inventions. While EP '072 teaches a three-way catalyst located after a NO_x trap, EP '072 fails to teach or suggest, *inter alia*, "an alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber. Further, Applicants respectfully direct the Examiners attention to the previously made arguments regarding the deficiencies of the other above cited art. Since EP '072 combined with the above-cited references fails to teach or suggest "an exhaust gas catalyst system, comprising: a substrate; and a nitrogen oxide adsorber disposed on said substrate, the nitrogen oxide adsorber comprising: a porous support; and a material loaded on said porous support comprising: a NO_x oxidation catalyst; and an alkali material; and an alkali metal barrier disposed between the substrate and the nitrogen oxide adsorber", Applicants independent Claim 1 is not obvious. As a dependent claim from an allowable independent claim, Claim 16 is, by definition, also allowable.

For at least the foregoing reasons, Applicants request withdrawal of these rejections and allowance of the claims.

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It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

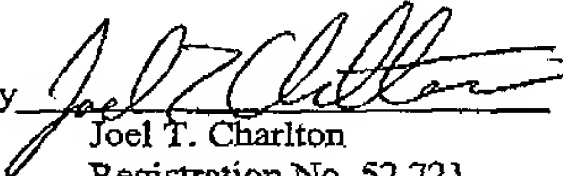
If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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